

Work Order ID 58390

May 5, 2010 1:24:56 PM



Page 1

Item ID: D407-667-205TRN

Accept



Setup Start



Revision ID:

Item Name: Crosstube Turning Detail

Stop



Start Date: 05/05/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 21/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

05-05

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D407-667-245	Rev F								

100

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DT8531 on both ends as per Folio FA248□2-Turn first side as per Folio FA248□3- File transition lines smooth.

Q.A 10-05-10 ①

110

0.00



QC1- Inspect dimensions to dimension sheet

QC

Memo

0.00

Quality Control

Q.A 10-05-10 ②

120

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FA248□2- File transition lines smooth.□3- Remove sand and plugs□4-Scribe part # and batch # using vibrating stylus as per Dwg D407-667-245 □Inside of Cuff(Donot engrave on outside of tube)

Q.A 10-05-10 ③

Work Order ID 58390

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Page 2

Item ID:	D407-667-205TRN	Accept		Setup	Start	
Revision ID:						
Item Name:	Crosstube Turning Detail				Stop	
Start Date:	05/05/2010	Start Qty:	1.00			
Required Date:	21/05/2010	Req'd Qty:	1.00			
Reference:				Cust Item ID:		
				Customer:		

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	
	QC:	Date:	SPC (Y/N):	Date:		Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	QC1- Inspect dimensions to dimension sheet	0.00							
QC	Memo	0.00							
Quality Control									
140	QC8- Inspect parts - second check	0.00							
QC	Memo	0.00							
Quality Control									
150	Crosstubes Chemical Conversion	0.00							
HandFXtube	Memo	0.00							
Hand Finishing Crosstubes	Ensure no sand is in the tube before alodine.								

Q.M. 10-05-10

1 - - ANM 10-5-11

1 - - ANM 10-5-11

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Page 3

Item ID: D407-667-205TRN

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Turning Detail

Start Date: 05/05/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 21/05/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

160

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

170

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and stock in kanban rack Location:

X-TUBE CELL

180

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

10/05/12

AWM 10-5-10

am 10-05-11

MF 10-5-11

Picklist Print

May 5, 2010 1:25:00 PM

Page 1

Work Order ID: 58390

Parent Item: D407-667-205TRN

Parent Item Name: Crosstube Turning Detail

Comments: IPP Rev:A 08-03-06 new issue DD verified by:ec
 IPP Rev B 08.04.02 Removed polish EC verified by: DD
 IPP Rev:C 08-08-19 revE as per dwg DD verified by:EC

Start Date: 05/05/2010

Required Date: 21/05/2010

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/	Replacement	Mfg/	Bin	Primary	Last	Route	Unit of	Qty on	Qty per Kit	Qty	Date	Status
D6011-115		Manufactured	No			120	Each	5.0000	1			



Crosstube Material



0A 10-05-10 (1)

Location

Loc Qty

Loc Code

LG

5

38344

5

1

DART AEROSPACE LTD	Work Order:	58328
Description: Crosstube Assembly	Part Number:	D407-667-245
Inspection Dwg: D407-667-245 Rev: F		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.490	+0.005/-0.000	2.490	/			
	1.832	+0.005/-0.000	1.832	/			
	1.838	+0.005/-0.000	1.843	/			
	1.892	+0.005/-0.000	1.892	/			
	2.052	+0.005/-0.000	2.052	/			
	2.206	+0.005/-0.000	2.211	/			
	2.521	+0.005/-0.000	2.526	/			
	2.633	+0.005/-0.000	2.632	/			
	4.10	+/-0.030	4.10	/			
	4.978	+/-0.030	4.978	/			
	2.040	+0.000/-0.010	2.040	/			
	0.125	+/-0.010	0.125	/			
	R0.063	+/-0.010	R0.063	/			
	R0.500	+/-0.010	R0.500	/			
	2.490	+0.005/-0.000	2.490	/			
SIDE B	1.832	+0.005/-0.000	1.832	/			
	1.838	+0.005/-0.000	1.843	/			
	1.892	+0.005/-0.000	1.892	/			
	2.052	+0.005/-0.000	2.052	/			
	2.206	+0.005/-0.000	2.211	/			
	2.521	+0.005/-0.000	2.526	/			
	2.633	+0.005/-0.000	2.632	/			
	4.10	+/-0.030	4.10	/			
	4.978	+/-0.030	4.978	/			
	2.040	+0.000/-0.010	2.040	/			
	0.125	+/-0.010	0.125	/			
	R0.063	+/-0.010	R0.063	/			
	R0.500	+/-0.010	R0.500	/			
	112.91	+/-0.020	112.910	/			

Measured by:	C. M.	Audited by:	A. V. M.	Prototype Approval:	N/A
Date:	10.05.10	Date:	10-5-11	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	04.04.21	New Issue (P/O D407-667-205)	KJ/RF	
B	06.03.09	Dwg Rev updated	KJ/JLM	
C	06.03.30	Tolerance revised for 4.978 dimension	KJ/JLM	
D	07.02.19	Dwg Rev updated	KJ/JLM	
E	09.05.20	Dwg Rev updated	KJ	

Item	QTY -245	PART NUMBER	DESCRIPTION
1	X	D407-667-245	CROSSTUBE ASSEMBLY (407 HIGH AFT)
2	1	D6011-115	CROSSTUBE
3	2	D2856-400-773	ABRASION STRIP
4	2	D2873-043	NUT PLATE
5	2	D2873-045	NUT PLATE
6	1	D2894-1	SUPPORT
7	2	D3190-1	CHAFING SHIELD
8	2	D3595-063-430	RUBBER CUSHION
9	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
10	4	MS21920-22	CLAMP
11	2	MS21920-25	CLAMP (OR MS21920-24)
12	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947- 100, TYPE II, CLASS 2 ADHESIVE)

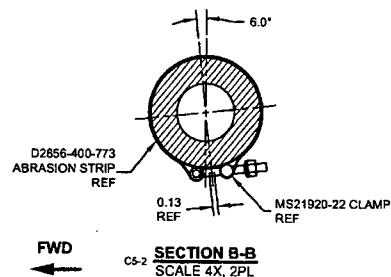
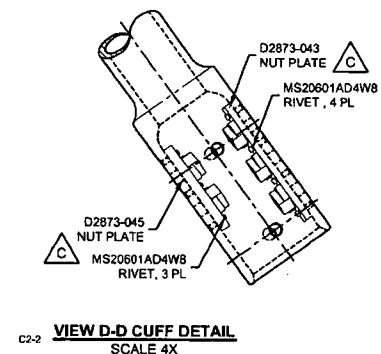
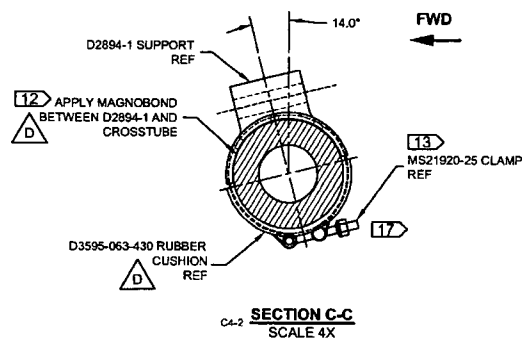
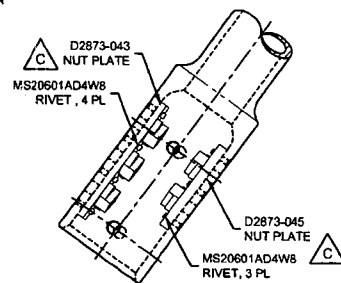
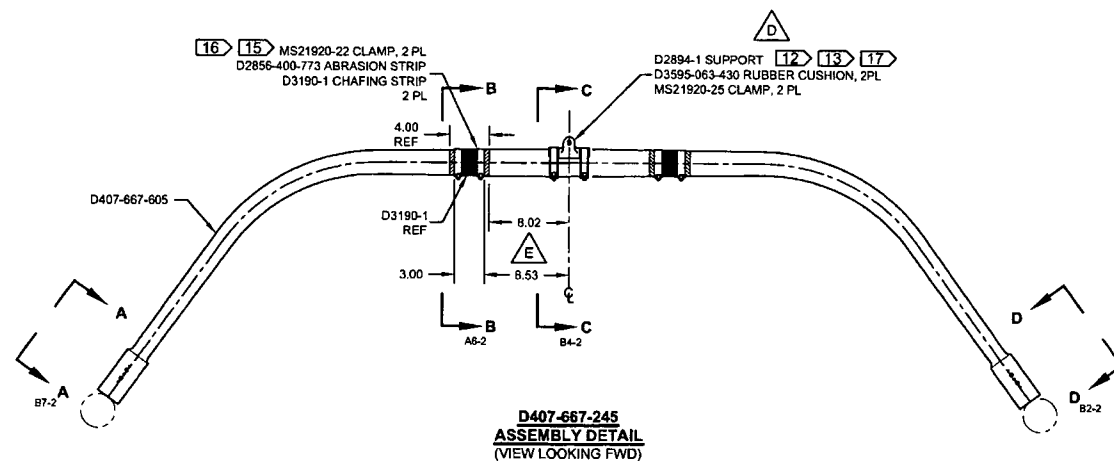
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 58390
10-5-05

RELEASED
08/11/06

GENERAL NOTES:

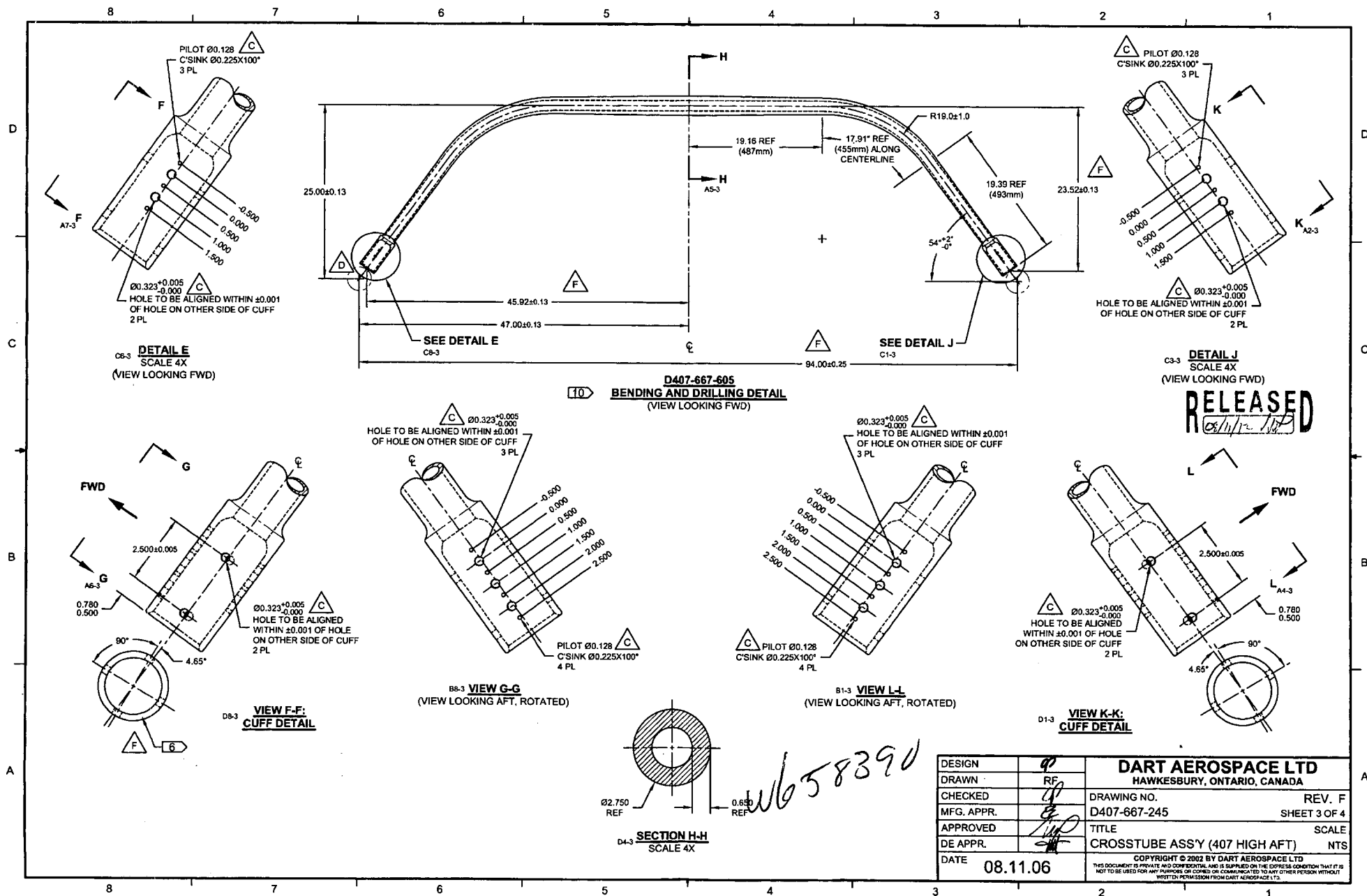
- MATERIAL: MANUFACTURED FROM D6011-115
FINISHED LENGTH = 112.91±0.020
- FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- UNITS: INCHES UNLESS OTHERWISE NOTED.
- BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-245" AND BATCH NUMBER ON
INSIDE OF CUFF USING VIBRATING STYLUS.
- WEIGHT: 27.7 lbs
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH.
- BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO
BENDING IS 6% BASED ON O.D.
- LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- INSTALL D2894-1 CENTER SUPPORT USING A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND
6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO
PACKAGING.
- INSTALL MS21920-25 CLAMPS WITH D3595-063-430 RUBBER CUSHIONS TO SECURE D2894-1
SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBE
SUPPORT.
NOTE: MS21920-24 CLAMPS CAN BE USED TO ACCOMMODATE VARYING DIAMETERS.
ENSURE THERE IS A MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.
- EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- INSTALL D2856-400-773 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF
CROSSTUBE, PER QSI 035.
- INSTALL D3190-1 CHAFING SHIELDS SO THAT OVERLAP IS ON BOTTOM SIDE OF CROSSTUBE
OPPOSITE D2894-1 SUPPORT.
- TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

F	REFORMAT NOTES TO NEW STANDARDS (ZN B8-1); RELOCATED FLAG # 6 (ZN A8-3) PER NCR 210; REMOVED REF. & ADD TOLERANCES (ZN C6-3, C4-3 & D2-3)	RF	08.11.06
E	8.02 AND 8.53 WERE 8.40 AND 8.90 (ZN D5-2); REORGANIZED VIEWS AND REFORMATED DRAWING TO CURRENT STANDARDS. REASONS: CLAMPS MOVED 0.375 TOWARD CL TO ELIMINATE INTERFERENCE WITH AIRCRAFT MOUNTS. REFERENCE: PAR#08-21 AND EON#1225	MB	08.07.24
D	ADD VIEW FOR OEM SKID HOLES, ROTATE ORIENTATION OF CLAMPS SECTION F-F, REMOVE -851 ABRASION STRIP, ADD MAGNOBOND 6398, ADD CUSHION	PH	07.02.07
C	ADD HOLES AND NUT PLATES FOR COMPATIBILITY WITH BHT/AA SKIDTUBES	PH	05.07.26
B	ADD CHAFING SHIELD	CP	03.05.21
A	NEW ISSUE	CP	02.05.13
REV.	DESCRIPTION	BY	DATE
DESIGN	<u>JP</u>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<u>JP</u>	DRAWING NO.	REV. F
MFG. APPR.	<u>JP</u>	D407-667-245	SHEET 1 OF 4
APPROVED	<u>JP</u>	TITLE	SCALE
DE APPR.	<u>JP</u>	CROSSTUBE ASS'Y (407 HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS RELEASED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



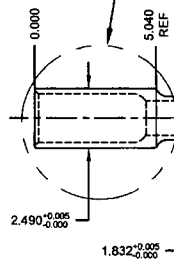
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02/11/12

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DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	EP	DRAWING NO.	REV. F
MFG. APPR.	EP	D407-667-245	SHEET 2 OF 4
APPROVED	14P	TITLE	SCALE
DE APPR.	14P	CROSSTUBE ASS'Y (407 HIGH AFT)	NTS
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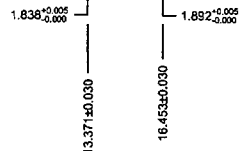


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MFG. APPR.	CP	D407-667-245	SHEET 3 OF 4
APPROVED	CP	TITLE	SCALE
DE APPR.	CP	CROSSTUBE ASS'Y (407 HIGH AFT)	NTS
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SEE DETAIL M
A7-4

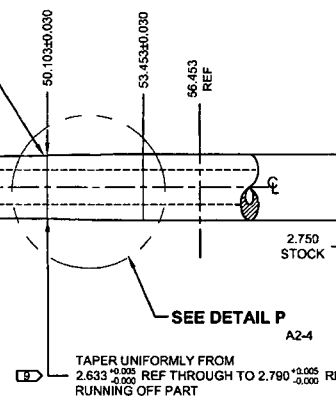


R100.0 TRANSITION
BETWEEN TAPERED
SECTIONS



R100.0 TRANSITION
BETWEEN TAPERED
SECTIONS

R100.0 TRANSITION
BETWEEN TAPERED
SECTIONS

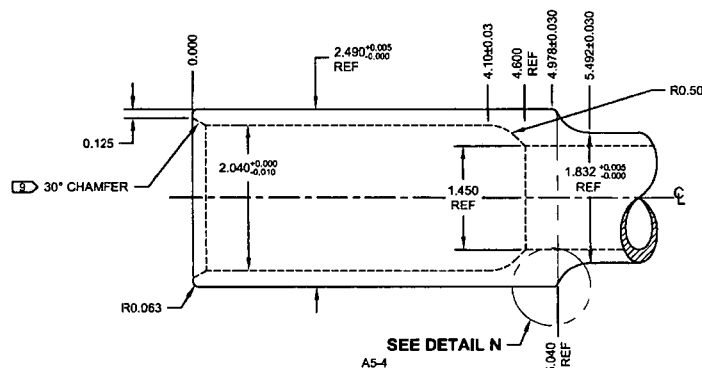


SEE DETAIL P
A2-4

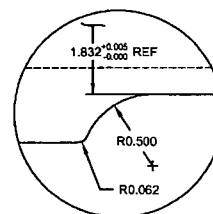
TAPER UNIFORMLY FROM
2.633 +0.005/-0.000 REF THROUGH TO 2.790 +0.005/-0.000 REF
RUNNING OFF PART

RELEASED
08/11/12 JMD

D407-667-245 MACHINING DETAIL

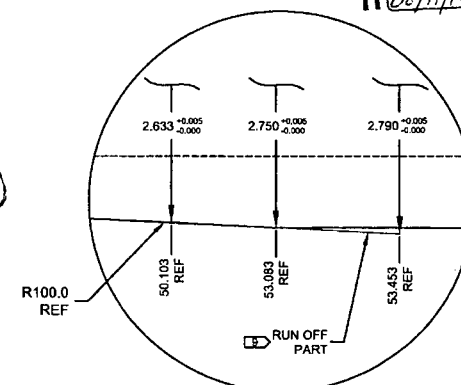


D8-4 **DETAIL M: CROSSTUBE CUFF**
SCALE 3X



66-4 **DETAIL N: CUFF TRANSITION**
SCALE 2X

w/058320



C1-4 **DETAIL P: TAPER RUN-OFF**
NOT TO SCALE

DESIGN	40	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	40	DRAWING NO.	REV. F
MFG. APPR.	40	D407-667-245	SHEET 4 OF 4
APPROVED	40	TITLE	SCALE
DE APPR.	40	CROSSTUBE ASSY (407 HIGH AFT)	NTS
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